Well Id. Code: IN-4

COMPILATION OF INDUSTRIAL AND MUNICIPAL INJECTION WELLS IN THE UNITED STATES

Permit Status: PDR Operational Status: NO-UP
Operating Company Name and Address: EMC Corporation
P.O. Box 34 - Newport, Indiana

I. GENERAL IDENTIFICATION DATA

1. Entry Date of Data: (Day) 01 (Month) 12 (Year) 72
2. Latitude and Longitude: N/A
3. Well Location (Legal Description): NE 1/4, NW 1/4, Sec. 9, T16N, R6W
4. County: Vermillion State: Indiana
5. SIC Classification: 3561

II. GENERAL DATA ON WELL SITE

1. Type of Waste Injected: N/A
2. Date Well Permitted: Completed: 5/22/60
3. Injection Rate: 50 gpm
4. Injection Pressure: 1000 psi
5. Total Depth of Well: 6160
6. Name, Age, and Depth of Injection Zone: Mt. Simon, Cambrian, 5260
7. Date Injection Began: (Day) 15 (Month) 10 (Year) 60
8. Total Volume Injected to Date: 150,000,000 (Gallons)
9. Date Injection Ceased: (Day) N/A (Month) (Year)
10. Previous Mode of Disposal: N/A

III. GEOLOGIC INFORMATION

1. Lithology and Stratigraphy
   A. Geological Description of Rock Units Penetrated by Well

(a) Name	(b) Age	(c) Depth	(d) Thickness	(e) Lithologic Description
Cincinnatian	Ordovician	1880	319	shale
Trenton	Ordovician	2199	161	limestone
Black River	Ordovician	2360	450	limestone
Knox	Cambrian	2819	1600	dolomite
Eau Claire	Cambrian	4420	840	limestone, shale
Mt. Simon	Cambrian	5260	900	limestone, sandstone

B. Geologic Description of Injection Unit and Other Possible Units

		Injection Unit	Confining Bed
(1)	Name	Mt. Simon	
(2)	Depth (Ft.)	5260	
(3)	Thickness (Ft.)	900	5000
(4)	Formation Fluid Pressure, psi	0.45 psi/ft est.	
(5)	Lithostatic Pressure, psi	1.0 psi/ft est.	
(6)	Hydrofracturing Pressure, psi	1.0 psi/ft est.	
(7)	Age of Unit	Cambrian	Penn. - Camb.
(8)	Porosity %	6	
(9)	Permeability, millidarcies	6 - 8	
(10)	Reservoir Temperature, °C		
(11)	Character and Areal Distribution	shale, sandstone	shale, carbonates
		extensive	sandstone
			extensive

C. Chemical Characteristics of Formation Fluids: 204,400 ppm TDS; 125,000 ppm Cl^-; 508 ppm SO_4; 116 ppm $(CO_3)_2$; 22,400 ppm Ca; 2840 ppm Mg; pH=4.5

3. Geohydrology of Fresh Water and Other Useful Aquifers

Name	Depth	Thickness	Areal Extent	Lithologic Character	Fluid Character
N/A					

4. Mineral Resources in Area: The area around the disposal well is an area of large coal deposits. Over 150 million tons of coal has been produced from the deposits.

5. Location of Other Wells, Abandoned Wells, and Other Penetrations in Immediate Hydrologically Affected Area: N/A

IV. WASTE CHARACTERISTICS

1. Technical Description (Including Radioactivity): 22,000 ppm Ca; 9,000 ppm Fe; 3000 ppm Mg; 125,000 ppm Cl^-; 10 ppm solids (after filtration)

2. Physical/Chemical Description
   A. Conc. Suspended Solids, mg/l: 10
   B. Conc. Dissolved Solids, mg/l: 200,000
   C. Specific Gravity: 1.09
   D. Temperature: N/A
   E. pH: 4.9

3. Toxicity: N/A

4. Reactivity with Surface Equipment Components: Cathode type protection system installed.

5. Degradability Level and Rate: N/A

6. Biological Level at Injection and Estimated Biological Level After Injection: Probably not sterile at injection; bacterial activity minimal.

7. Pre-injection Waste Treatment: Settling, pressure leaf filtration, pH control.

V. WELL DESIGN AND CONSTRUCTION

1. Casing and Tubing

	Hole Size	Casing or Tubing Weight and Grade	Size	Depth Set
Surface	13-3/4		10-3/4	498
Intermediate				
Injection	8-3/4	23#	7	5450
Other	7-7/8	Open Hole		6160

2. Type and Amount of Cement, Cement Additives, Emplacement Horizon: N/A

3. Well Head Equipment (Name and Models): N/A

4. Packers, Centralizers, and Other Subsurface Equipment: N/A

5. Bottom Hole Completion: Open hole

6. Hydraulic Fracturing, Acidizing Programs, etc.: None - formation is highly fractured; 250,000 gallon fresh water buffer zone.

VI. DESCRIPTION OF SURFACE EQUIPMENT

1. Holding Tanks and Flow Lines: 13,000 gallon waste rundown tank; surge tank

2. Filters: Leaf and cartridge filters

3. Pumps: _____

VII. OPERATION CHARACTERISTICS

1. Injection Rate, gpm (During Life of Well to Present)

Date(s)	Average	Maximum
	50	1000
"		
"		
"		

2. Injection Pressure, psi (During Life of Well to Present)

Date(s)	Average	Maximum
	1000	1500
"		
"		
"		

3. Annual Volume Injected, gal.
   A. 19__ N/A B. 19__ _____ C. 19__ _____

VIII. SAFETY INFORMATION

1. Monitoring Program

   A. Monitoring Devices and Data: Volume and pressure monitor

   B. Sampling Frequency and Water Quality Parameters Measured: N/A

   C. Frequency of Measuring Water Levels and Hydrostatic Heads: N/A

2. Contingency Plan for Well Failure During Operation: N/A

3. Regulatory Aspects

   A. Construction Requirements: N/A

   B. Monitoring Requirements: N/A

   C. Restrictions of Operation Procedures: N/A